

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference A30416 WO	FOR FURTHER ACTION	See item 4 below
International application No. PCT/GB2004/005419	International filing date (<i>day/month/year</i>) 31 December 2004 (31.12.2004)	Priority date (<i>day/month/year</i>) 15 January 2004 (15.01.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 17 July 2006 (17.07.2006) Authorized officer <div style="text-align: center; font-weight: bold;">Dorothee Mülhausen</div> e-mail: pt01@wipo.int
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

REC'D 21 MAR 2005

WIPO

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/005419

International filing date (day/month/year)
31.12.2004

Priority date (day/month/year)
15.01.2004

International Patent Classification (IPC) or both national classification and IPC
G06T11/00

Applicant
BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for International preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/005419

Box No. 1 Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/005419

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-8,12-18
	No: Claims	1,9,10,11
Inventive step (IS)	Yes: Claims	2-8,12-18
	No: Claims	1,9,10,11
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

1. Reference is made to the following document:

D1: FUJIWARA T., TOMINAGA M., MURAKAMI K., KOSHIMIZU H.: "Web-PICASSO: Internet Implementation of Facial Caricature System PICASSO" LECTURE NOTES IN COMPUTER SCIENCE, vol. 1948, 2000, pages 151-159, XP002319343

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **independent claims 1, 9, 10 and 11** is not new in the sense of Article 33(2) PCT.

The discussion will be limited to claim 1, since claim 11 defines the same features using the same terminology as claim 1, claim 9 is defined by direct reference to claim 1 and claim 10, in turn, is defined by direct reference to claim 9.

Claim 1:

D1 may be read to claim 1 since it discloses

- i. *a method of generating a caricatured image*: see abstract;
- ii. *storing image representations of subjects and corresponding respective caricatured image representations of the subjects*: Web-Picasso stores a database of image representations and - at least temporarily for a chosen representation - a corresponding respective caricatured image representation (see Fig. 7);
- iii. *receiving an image representation of a new subject*: visitors of the Web-Picasso page may provide their own face for caricaturing (see chapter 3.2);
- iv. *generating a caricatured image representation of the new subject in dependence on the stored image representations of the subjects and the received image representation of the new subject*: when caricaturing any face, e.g. a visitor's newly entered own face, a caricatured image representation of the face is calculated by amplifying the difference between the face image and a mean face image (see Equation (1)). This mean face image is iteratively improved by changing the set of face samples from which it is calculated and

which is selected from a database of stored image representations (see chapter 4.1).

Hence, claim 1 is not new.

3. The subject-matter of independent **claims 2, 6, 12 and 16** is new in the sense of Article 33(2) PCT and involves an inventive step in the sense of Article 33(3) PCT.

The discussion will be limited to method claims 2 and 6, since system claims 12 and 16 define the same features using the same terminology.

Claim 2:

D1 as closest prior art discloses adapting the selection of faces forming a mean face image towards a new image that is to be caricatured, i.e. it discloses generating a caricature of a new image in dependence on a database of stored image representations of subjects and in dependence on the new image.

However, D1 does not disclose generating replacement caricatures for the stored image representations of subjects in the database after adaptation of the mean face image, i.e. it does not disclose generating replacement caricatured image representations of the subjects in dependence on the stored image representations thereof and the received image representation of the new subject.

This difference between D1 and the subject-matter of claim 2 is due to different problems to be solved. While the problem solved in D1 is to maximally distinguish each caricature from its corresponding original image, the problem solved by claim 2 is to maximally distinguish all the caricatures from each other.

Since the solution to this problem as presented in claim 2 is neither disclosed nor rendered obvious in any of the prior art documents of the International Search Report, claim 2 is considered to be new and inventive.

Claim 6:

D1 as closest prior art does not disclose removing image representations of subjects from the database. Thus, D1 does not disclose generating replacement caricatures in dependence on the stored image representations of remaining subjects at least partially discounting the image representations of subjects indicated to leave.

The problem solved by claim 6 is to maximally distinguish all the caricatures from

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/005419

each other.

Since the solution to this problem as presented in claim 6 is neither disclosed nor rendered obvious in any of the prior art documents of the International Search Report, claim 6 is considered to be new and inventive.

4. The dependent claims are considered to meet the requirements of the PCT with respect to novelty and inventive step.

Further Remarks:

1. In claim 6 it is not made clear that replacement caricatures are only generated for the subjects not indicated, i.e. for the subjects who are to remain (see page 15, line 20) (Article 6 PCT).
2. The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
3. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
4. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
